REMARKS

Claims 1-11 and 13-23 were pending in the subject application prior to these amendments. By this amendment, Claims 1, 3, 13, 14, 16 and 23 have been amended to more particularly point out the subject matter regarded as inventive and Claims 2, 11 and 15 have been cancelled. Claim 12 was previously withdrawn from consideration in response to a restriction requirement imposed by the Examiner. Therefore, following these amendments, claims 1, 3-10, 13, 14, and 16-23 remain pending in this application. It is respectfully submitted that no new matter has been introduced by these amendments, as support for the amendments can be found throughout the written specification and drawings as filed. Reconsideration of the subject patent application is respectfully requested in view of the preceding amendments and following remarks.

Rejection to the Oath/Declaration

In the Office Action, the Examiner indicated that the Oath & Declaration provided by the Applicants is defective because "the inventor signatures are missing." However, on December 5, 2006, a Renewed Petition Under 37 C.F.R. § 1.47(a) ("Renewed Petition") was submitted by Applicants requesting that the Office allow three inventors to enter the national stage where the fourth inventor (David Rogers) refuses to join in the national stage application. An Oath & Declaration signed by Inventors Mannarino and Reid and an Oath & Declaration executed by Inventor Zagranski accompanied the Renewed Petition. The Renewed Petition was granted by the Office of PCT Legal Administration and this pending national stage application was accepted

without the signature of Inventor Rogers. Therefore, Applicants believe that the Examiner's rejection to the Oath & Declaration provided in the pending application has been previously resolved by grant of the petition by the PCT Legal Administration and an action acknowledging the same is respectfully requested.

Objections to the Specification

In the Paragraph 3 of the Office Action, the specification was objected to because of the following:

a. Paragraph 37 (or 39) refers to "NP", which has not been defined.

b. Paragraphs 41 and 42 (or 43 and 44) refer, separately, to NPEng2 as being a non-derivative and a derivative path. How is it both?

c. Paragraph 44 (or 46) refers to high side and low side drivers. What are high/low side drivers?

Concerning the rejection contained in Paragraph 3(a) of the Office Action, Applicants believe that "NP" is defined in the specification. In fact, the first sentence of paragraph 39 (or 40) states "....two NP engine signals (i.e., power turbine speed signals) are brought....." Therefore Applicants believe that the specification does define "NP" as "power turbine speed."

Concerning the Examiner's rejection contained in Paragraph 3(b) of the Office Action, Applicants believe that there is a misunderstanding. The specification does not refer to NPEng2 as being a non-derivative path and a derivative path. In the cited paragraphs, the specification indicates that the speed signal NPEng2 is provided as an input in Lane 2 of Channel A to a non-derivative path (non-derivative control logic) and in Lane 1 of Channel B the speed signal

NPEng2 is provided as an input to derivative (proportional control logic). Applicants belive that the above explanation resolves the Examiner's rejection.

Concerning the rejection contained in Paragraph 3(c) of the Office Action, as would be understood by those skilled in the art, a high side driver is a transistor switch that turns on/off 28 volts DC on one side of the solenoid. The low side driver is a transistor switch that connects the other side on/off to ground.

Claim Rejections Under 35 U.S.C. § 112

In the Office Action claims 1-11 and 13-22 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. More specifically, according to the Examiner, claims 1 and 14 recited "means for providing a desired minimum fuel flow..." and a "means for shutting off fuel flow", but the specification does not clearly state the structure by which either of the "means for" are accomplished.

Applicants respectfully disagree with the Examiner's assertion that the specification does not clearly state the structure by which either of the "means for" are accomplished. As an example, the specification illustrates that a minimum flow overspeed solenoid valve 28 is used in conjunction with other structures for providing a desired minimum fuel flow to the engine and an fuel shutoff solenoid valve 32 is part of the structure which shuts off fuel flow to the engine. (See e.g. paragraph 49 [or 0051]).

In addition to the above-noted rejection, claims 1-11 and 13-23 were also rejected based on 35 U.S.C. § 112, second paragraph, as being indefinite because the Examiner believes that the

term "minimum fuel flow" is indefinite because the claim does not define how the minimum is established.

Applicants note that those skilled in the art will readily appreciate that "minimum fuel flow" as used in the context of the present application means a precise "essentially constant, low value " of fuel flow that keeps the engine running at very low power (but doesn't flame out the engine) at all altitudes within the operating range of the engine.

Concerning the Examiner's rejection of claims 2 and 15 on the grounds that the terms "relatively low altitude" and "relatively high altitude" are not defined by the claim, Applicants have cancelled the relevant claims, thereby rendering the rejection moot.

Claim Rejections Under 35 U.S.C. § 102

In the Office Action, claims 1-2, 8 and 13-15 and 20 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent 6,996,969 to Dalton. Dalton discloses a multi-mode shutdown system in combination with a fuel metering unit of an engine to prevent normal fuel delivery during engine malfunction such as the engine overspeeding. The multi-mode shutdown system of Dalton includes a shutdown solenoid capable of closing a pressurizing valve to prevent fuel flow to the engine for creating a shutdown mode of operation with no fuel flow to the engine. The multi-mode shutdown system also includes a minimum flow solenoid in fluid communication a source of fuel at a minimum flow rate for creating a minimum flow mode of operation with fuel provided to the engine at the minimal flow rate. In the minimum flow mode, the shutdown solenoid and minimum flow solenoid establish a flow path for the fuel to the

engine manifold at the minimal flow rate. During normal operation, the fuel metering unit regulates the fuel flow to the engine.

In contrast, the present invention as recited in currently amended independent claims 1 and 14 is directed to a control system for a turboshaft engine that includes, among other elements, a first sensor for measuring a turbine speed parameter and a second sensor for measuring the altitude at which the engine is operating. The control system further include a mechanism for providing a desired minimum fuel flow to the engine when an overspeed condition is detected based on the turbine speed parameter measured by the first sensor and when the engine is operating within a first altitude range as determined by the second sensor; and a mechanism for shutting off fuel flow to the engine when an overspeed condition is detected based on the turbine speed parameter measured by the first sensor and the engine is operating in a second altitude range as determined by the second sensor.

Dalton does not teach, suggest or disclose a control system that receives input from an altitude sensor and based upon this input, as well as other signals, either shuts off fuel flow to the engine or reduces the fuel flow to a minimum required to keep the engine running at very low power at all altitudes within the operating range of the engine.

Therefore, Applicants respectfully submit that Dalton does not anticipate amended independent claims 1 and 14 and the claims depending therefrom, namely claims 3-10, 12, 13 and 16-22, and an action acknowledging the same is respectfully requested.

In the Office Action, claims 1 and 14 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 4,045,955 to Brannstrom. Brannstrom discloses an apparatus for controlling the flow of fuel supplied via a regulating valve to a gas turbine plant having a

compressed-gas generating unit and a power turbine which is driven by the gas from the generating unit. The function of the controlling apparatus is to reduce or cut off the supply of fuel in the event of an overspeed condition of the power turbine. The apparatus includes a first means which is responsive to the angular velocity of a rotor in the power turbine, and a second means which is responsive to the angular acceleration of such rotor. The control means is jointly responsive to the output signals provided by the first and second means, so as to control the valve and reduce the rotor's angular velocity when the output signals provided by both the first and second means concurrently exceed predetermined values.

As noted above, the control system of the present invention as recited in claims 1 and 14 includes a mechanism for providing a desired minimum fuel flow to the engine when an overspeed condition is detected based on the turbine speed parameter measured by the first sensor and when the engine is operating within a first altitude range as determined by the second sensor; and a mechanism for shutting off fuel flow to the engine when an overspeed condition is detected based on the turbine speed parameter measured by the first sensor and the engine is operating in a second altitude range as determined by the second sensor.

Brannstrom does not teach, suggest or disclose a control system that receives input from an altitude sensor and based upon this input, as well as other signals, either shuts off fuel flow to the engine or reduces the fuel flow to a minimum required to keep the engine running at very low power at all altitudes within the operating range of the engine.

Therefore, Applicants respectfully submit that Brannstrom does not anticipate amended independent claims 1 and 14 and an action acknowledging the same is respectfully requested.

Claim Rejections under 35 U.S.C. § 103

In the Office Action, claims 3 and 16 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Dalton in view of U.S. Patent Application Publication No. 200/0012071 to Sun ("Sun").

Sun is directed to a spatial resolution enhancement and dynamic range extension for a Computerized Airborne Multicamera Imaging System (CAMIS). CAMIS is a multispectral imaging system for diverse manned and unmanned aerial vehicles to fly along flexible paths and altitudes for a wide variety of applications. The Examiner cited Sun for disclosing that aircraft are commonly flown above 10, 000 feet and that it is a "mid-altitude".

However, Sun does not cure the deficiencies of Dalton noted above with respect to independent claims 1 and 14. More specifically, Sun does not teach, suggest or disclose a control system that receives input from an altitude sensor and based upon this input, as well as other signals, either shuts off fuel flow to the engine or reduces the fuel flow to a minimum required to keep the engine running at very low power at all altitudes within the operating range of the engine.

Therefore, Applicants submit that the combination of Sun and Dalton does not render obvious claims 3 and 16, which depend from claims 1 and 14 respectively, and an action acknowledging the same is respectfully requested.

In the Office Action, claims 4, 9-11 and 21-23 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Dalton in view of Brannstrom.

Applicants have identified above why neither Dalton nor Brannstrom anticipate claims 1 and 14 and each of the claims depending therefore. Based on the same rationale, the combination of these references is similarly deficient with respect to claims 1 and 14.

Moreover, independent claim 23 has been amended to recite a method for limiting turboshaft engine overspeed that includes the steps of: measuring at least one engine speed parameter; sensing the altitude at which the engine is operating; and determining whether an overspeed condition exists based on the measured speed parameter using a control system which includes a first logic path having derivative and non-derivative control logic and a second logic path having non-derivative logic. In addition, the claimed method includes the steps of providing a desired minimum fuel flow to the engine when an overspeed condition is detected by the engine control system when the engine is operating in a first altitude range; and shutting off fuel flow to the engine when an overspeed condition is detected by the engine control system and the engine is operating in a second altitude range.

As noted above, neither Dalton nor Brannstrom teach, suggest or disclose a control system that receives input from an altitude sensor and based upon this input, as well as other signals, either shuts off fuel flow to the engine or reduces the fuel flow to a minimum required to keep the engine running at very low power at all altitudes within the operating range of the engine.

Therefore, Applicants submit that the combination of Dalton and Brannstrom does not render obvious claims 1, 14 and 23 and each of the claims depending therefrom and an action acknowledging the same is respectfully requested.

In the Office Action, claims 5 and 17 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Brannstrom in view of U.S. Patent Application Publication No. 2003/0107341 to Morris. Morris was cited by the Examiner as teaching that shaft speed control systems were well known in the art to comprise proportional logic with both derivative and no-derivative logic. Without taking issue with the accuracy of this statement, Applicants note that Morris fails to cure the deficiencies of Brannstrom identified above with respect to claims 1 and 14, which claims 5 and 17 depend respectively.

Therefore, Applicants submit that the combination of Brannstrom and Morris does not render obvious claims 5 and 17 and an action acknowledging the same is respectfully requested.

In the Office Action, claims 6 and 18 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Brannstrom in view of U.S. Patent No. 5,301,499 to Kure-Jensen. Kure-Jensen was cited by the Examiner as teaching that control systems were known to use reset logic in order to reset the system for startup. Without taking issue with the accuracy of this statement, Applicants note that Kure-Jensen fails to cure the deficiencies of Brannstrom identified above with respect to claims 1 and 14, which claims 6 and 18 depend respectively.

Therefore, Applicants submit that the combination of Brannstrom and Kure-Jensen does not render obvious claims 6 and 18 and an action acknowledging the same is respectfully requested.

CONCLUSION

Applicants respectfully submit that none of the prior art of record, alone or in combination, discloses or suggests the invention as presently claimed. Based upon the foregoing, favorable consideration of Claims 1, 3-10, 13, 14, and 16-23 is respectfully requested. If it is believed that an interview would advance prosecution, the Examiner is invited to call Applicants' representatives at the number below.

This response is being submitted in conjunction with a request for a three-month extension of time. The Director is hereby authorized to charge the fee for the three-month extension and any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 04-1105, under Order No. 61459US(49366).

Respectfully submitted,

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